# Defense Offsets: A Straategic Military Perspective

**By**

**Lieutenant Colonel Frank S. Petty, USA**
**Defense Supply Center Columbus, Ohio**

[*The views expressed in this academic research paper are those of the author and do not necessarily reflect the official policy or position of the U.S. government, the Department of Defense, or any of its agencies.]*

In reviewing *The Economics of Offsets: Defense Procurement and Countertrade*, Gordon MacDonald observed that "Despite the fact that offsets are a very important part of the international trade in defense equipment, little has been written on this subject."[1] What has been written on offsets primarily comes from an economic perspective and to a lesser extent from a political one. Offsets are complex and controversial. Yet they remain a well-established and growing feature of international arms trade; they seem destined to remain so well into the future. This study introduces the reader to offsets in international defense sales, examines U.S. offset policy, briefly reviews the non-Department of Defense (DoD) perspectives on them, explains DoD offset policy, and from a military perspective provides commentary and makes recommendations to the current offset policy.

**What are Offsets?**

In 1986, a U.S. interagency group defined offsets as "industrial compensation practices required as a condition of purchase in either government-to-government or commercial sales of defense articles and/or defense services as specified in the International Traffic in Arms Regulations."[2] Under the terms of an offset agreement, the seller agrees to formal or informal compensatory demands made by the purchasing nation. Offsets are classified as "direct" or "indirect." Direct offsets involve an agreement for a transaction directly related to the specific weapon system purchased, such as the seller's acquisition from the purchasing nation of components for the system being purchased. Indirect offsets require the seller to purchase goods or services that are unrelated to the product acquired. Such agreements generally require that a percentage of the purchase price be spent in the acquiring country's economy, usually within a negotiated period of time. Offsets may be structured to co-produce, to license production, to subcontract, to transfer technology, or to make an overseas investment.

Ironically, the United States made one of the first offset demands in 1961. Concerned with the balance-of-payment inequity incurred by maintaining U.S. forces in Germany, the agreement required Germany to buy U.S. goods to offset roughly 80 percent of the costs of stationing U.S. military forces.[3] Since the U.S. is the world's leading defense exporter (accounting for 55% of the 1996 global defense export market[4]) and purchases few foreign defense products, this early example is anomalous.

Direct offsets are often accomplished simply through the purchasing nation's manufacture of components or subcomponents, or its delivery of services to be incorporated into the product being sold. However, they can be accomplished through a licensing and coproduction agreement. A current example is the production of the F-16 aircraft in Turkey by licensee Tusas Aerospace Industries Inc. (TAI) under a license from Lockheed Martin. In addition to producing F-16s for the Turkish Air Force, TAI produced the F-16 for Egypt and is competing to build the fighter for other nations.

Indirect offset deals can become what Congressman Ron Wyden (D-Oregon) called "just bizarre." In an F/A-18 sale to Spain, McDonnell Douglas agreed to market Spanish steel coils, chemicals, sunflower seed oil, sailboats, paper products, zinc, and marble in the U.S. Through an offset agreement, a picture book was even published and distributed with the help of the defense contractor to promote tourism in Spain, and the contractor helped establish a Domino's Pizza franchise in Barcelona![5]

The percentage of sale price designated for offset varies, although some buying countries set a required minimum. A 150 percent offset was established for the $2.3 billion sale of F/A-18s to Canada.[6] The United Kingdom's offsets range from 50 to 130 percent, with the majority equal to at least 100 percent of the sale price.[7] Several countries set 30 to 50% as the minimum offset requirement. *Defense News* (1 February 1999) reported South Africa is demanding 400% offset for their planned purchase of light fighters.[8] Although such offsets seem to defy logic, they are negotiated and agreed upon by the defense contractor to secure a sale.

In 1984, Congress amended the Defense Production Act of 1950 by adding Section 309, which required the President to submit annually the impact of offsets on defense preparedness, industrial competitiveness, employment, and trade. Until 1992, the Office of Management and Budget (OMB) compiled this report. Under a 1992 modification of Section 309, this reporting responsibility was transferred to the Department of Commerce's Bureau of Export Administration (BXA). As input to this report, U.S. firms are required to report to BXA offset agreements that exceed $5 million and offset transactions in fulfillment of the agreements of $250,000 or more. Highlights of BXA's detailed August 1997 report (based on 1995 data) includes:

- 45 new offset agreements were reported valued at over $6 billion.
- European governments accounted for 86% of the value of these new agreements.
- 671 offset transactions reported at a value of $2.7 billion
- 40% of the transactions required direct offsets.
- 75% of the transactions involved purchases, subcontracts, and credit transfers.
- 8% of the transactions involved transfer of technology.[9]
- A separate survey of over 1000 U.S. subcontractors of major defense prime contractors:
  - 17% reported their businesses were impacted by offsets;
  - Of the 17% impacted:
    - 78% reported offsets adversely impacted their business.
    - 22% reported offsets positively impacted their business.[10]

In 1993, Undersecretary of State for Arms Control and International Security Lynn Davis acknowledged that "practically every arms purchaser demands some form of offset."[11] Although offset requirements may be stipulated in the sale of all types of defense material, the BXA report indicates that over 90 percent of the offset agreements pertained to the export of aerospace systems.[12] Thus, most examples in this paper are aerospace related.

## U.S. Offset Policy

A 1984 General Accounting Office (GAO) report admitted, "The U.S. government has no comprehensive national policy on offset agreements for the sale of military equipment to foreign government."[13] The President's Offset Policy Statement in 1990 reaffirmed U.S. commitment to the principles of free trade, but noted the need to minimize the adverse effects of offsets while protecting U.S. firms' competitiveness. This 1990 statement provides some interesting assertions: the government is committed to free and fair trade; adverse effects of offsets should be minimized without undermining competitiveness; certain offsets for military export are viewed as economically inefficient and market-distorting; government agencies shall not "encourage, enter directly into, or commit U.S. firms to any offset arrangement"; and "the decision whether to engage in offsets, and the responsibility for negotiation and implementing offset arrangements, resides with the companies involved."[14] The 1992 amendment of the Defense Production Act directed the Department of Commerce to lead in assessing the impact of offsets.[15]

The President's 1996 National Export Strategy recommended consultation with foreign nations to limit the adverse effects of offsets. The recommendation ended with what a DoD official described as the DoD position: "The United States should be cautious and not make any decisions to unilaterally limit offsets."[16] Some academic analysts have described the U.S. official policy on offsets as "ambivalent," saying they are a product of "benign, albeit somewhat confused, neglect."[17] The U.S. government normally does not regulate offsets negotiated by industry; however, there have been some exceptions. In the 1990 competition between McDonnell Douglas and General Dynamics counterbids escalated for a $5.2 billion fighter sale to Korea. Even early bids included an offset licensing of technology for producing the aircraft. But the government imposed a 30 percent cap on the value of additional offsets.

Even when there is an opportunity to eliminate offsets, U.S. policy has been averse to restricting them in defense procurements. The North American Free Trade Agreement (NAFTA) prohibits the U.S., Mexico, and Canada from requiring commercial or non-military offsets on government procurements. However, this ban is severely limited in the case of military procurements. A similar situation exists with the World Trade Organization (WTO), formerly the General Agreement on Tariffs and Trade (GATT). The current WTO code generally prohibits any member country from imposing non-military related offsets on foreign contractors, but again there is a national security exception which permits defense related offsets.[18] Although offsets have been widely debated, few steps have been taken in government policy to limit foreign governments' imposition of offset demands.

## Non-Department of Defense Offset Persepctives

United States policy reflects the divergent interests of the players in offsets. The issues surrounding offsets are controversial and can become very partisan. Key participants in this arena are prime contractors, sub-contractors, labor unions, foreign purchasing governments, the Executive Branch, Congress, and the military.

## Prime Contractors

Defense primes would prefer not to negotiate offsets and would like to compete for sales on the basis of price and quality. But because of prevailing conditions, prime contractors are compelled to compete through offsets. Contractors realize offsets impose performance requirements and involve financial risks. Nonetheless, they are a fact of life, so they negotiate offsets to win sales. Primes' concern over unilateral U.S. government intervention and their acceptance of offsets is documented in a 1996 GAO report:

> According to the Commerce Department, industry is not opposed to the initiation of consultations on offsets, but is concerned that the U.S. government might unilaterally limit the use of offsets. Officials from several large defense companies we interviewed also expressed concern about any unilateral action by the U.S. government that would limit offsets. Similarly, several officials expressed doubt that any multilateral agreement limiting offsets would be enforceable, and some noted that any ban would likely force offset activity underground. In addition, some company officials said that unilateral action banning offsets or an unenforceable multilateral agreement would place U.S. exporters at a competitive disadvantage in winning overseas defense contracts. Commerce and DoD officials agreed that unilateral action to limit offsets could harm U.S. defense companies.[19]

As the domestic market for defense equipment decreases, offsets have become more critical as the defense industry seeks to globalize. Major contractors know that offsets can hurt their workforce, their subcontractor base, and potentially even their product quality. Yet they accept offsets as a necessary evil to be endured in order to sell in the international market.

**Subcontractors**

Small-and medium-sized defense subcontractors are the real offset losers. A 1994 GAO report clearly summarizes the primary problem of offsets for the subcontractors:

> Once established through offset obligations, foreign producers have become highly competitive with U.S. subcontractors, prompting the U.S. prime contractors to maintain long-term supplier relationships with the foreign customers' industries. These relationships may benefit the U.S. prime contractors. According to an industry spokesman, these supplier relationships may even reduce the prime contractors' prices, but at a cost to the U.S. industrial base.[20]

Offsets require prime contractors and first-tier subcontractors to place business overseas, resulting in a loss of business to U.S. subcontractors. For example, the GAO cites a subcontractor that no longer produces a subsystem because of an offset buyback arrangement. This loss accounted for a $2 million reduction in revenues for the subcontracting firm.[21]

**Labor Unions**

Labor unions and American workers oppose offsets. For example, in October 1995, 32,000 Boeing machinists went on strike to protest offsets and Boeing's willingness to export jobs. But Boeing officials responded that offsets are necessary to meet market demand, claiming that "foreign subcontracting 'happens to be a part of doing business'." On the other hand, George Kourpias, President of the International Association of Machinists, voiced his union's concern: "By sending high-skill jobs and production all over the world, Boeing is punching holes in America's future." Offsets likewise triggered another volatile labor situation in 1991 with the sale of 120 F-16s to South Korea. The offset agreement called for 12 aircraft to be built at the General Dynamics plant in Fort Worth, Texas, while 36 more would be sent to Korea in kits and 72 planes would be built in Korea. When Fort Worth workers were asked to train South Korean replacement workers, they protested. General Dynamics finally sent the 500 Korean apprentices to the F-16 plant in Turkey for training.[22]

There would likely be more opposition to offsets and greater political pressure for a restrictive policy, but offsets are seldom discussed. The Federation of American Scientists sponsors the Arms Sales Monitoring Project, which seeks to increase understanding of the purposes and effects of offsets. Their Internet site proclaims that "If the public realized that U.S. arms corporations were jeopardizing American jobs by assisting foreign competitors, opposition to arms sales would increase. The arms industry knows this, and it has worked hard to keep offsets safely out of view."[23] Despite the warning of special interest groups, most Americans have no idea that offsets even exist. They do not understand their impact on the economy, trade, politics, and the military. However, advocates of arms control oppose offsets, which they view as a tool of proliferation of armaments and arms-making technology.[24]

**Foreign Purchasing Governments**

Offsets are not a "freebie," as in the "free lunch" fallacy. Ultimately, receiving countries usually pay a price for inefficient and uneconomical offsets. Nevertheless, offset agreements are perceived by foreign governments to make purchases more attractive and contribute to their increased participation in the defense industry. Although the cost of defense equipment is almost always more when offsets are negotiated, purchasing governments justify the agreements by suggesting they advance other economic and political objectives and transfer valuable technology. Especially in a time of declining defense budgets, offsets are used by purchasers to build public support for arms purchases. Offsets are seen to make their purchases more acceptable because of all the perquisites they receive from offset defense acquisitions. Offsets are thought to bring them new technologies and more jobs, thereby boosting their economies, increasing investment opportunities, creating a foothold in a new market with opportunities for export partnerships, strengthening national security, and supporting their domestic arms industry.

Developed countries generally seek direct offsets that often involve production, subcontracting, and co-production activities. They have established defense industrial bases and use offsets to help support and maintain their bases. Newly industrialized nations, such as South Korea, often seek offsets that involve technology transfers in defense or other high-technology industries. Offsets help these countries build their defense base, create viable businesses, and diversify their economies. Less developed countries typically seek indirect offsets that help create businesses and build their country's infrastructure.[25] However, access to technology, which drives advanced economies, appears to be a powerful motive of purchasing nations to engage in offsets.

Foreign purchasing governments may or may not receive real economic, political, and technological benefits from offsets. Nevertheless, these nations usually pay a price in the cost and inefficiencies of their defense purchases.

**Executive Branch**

The President has generally advocated the benefits of trade promoted by offsets. Faced with the prospect of losing international business, President Clinton expressed this position on exports:

> One of my highest priorities as President has been to provide greater economic opportunities for all Americans. In pursuit of this goal, my Administration developed this country's first-ever National Export Strategy to ensure that U.S. workers and businesses are able to profit from export opportunities in markets throughout the world.[26]

The President's laissez-faire position on offsets is politically popular abroad and at home with prime defense contractors.

**Congress**

Although there is considerable political pressure to curb the use of offsets, Congress has been reluctant to take issue with offsets and with arms sales generally. Exports through defense sales provide jobs and generally support the economy. Industry lobbyists such as a coalition of arms manufactures and labor unions have claimed that 40,000 jobs would be lost if a pending sale of 72 F-15s to Saudi Arabia were not approved.[27] What was not advertised was that Saudi Arabia requires a 30 percent offset on all buys, which for this purchase channeled $2.7 billion to Saudi workers and the Saudi economy.[28]

Frequently Congressional constituents, usually second and third tier contractors, associated labor unions, and local government organizations, pressure legislatures to actively oppose offsets and pass restrictive legislation. For example, Senator Russell Feingold (D-Wisconsin) took note of offsets when a company in his state lost a major contract to a Finnish competitor as a result of an offset on an F/A-18 sale to Finland. A major U.S. subcontractor involved in the deal also offered "incentive payments" to other U.S. companies to purchase Finnish materials in accord with offset obligations but at a loss to the Wisconsin company.[29] Senator Feingold was successful in including the "Feingold Amendment" among the Defense Production Act Amendments to the 1995 State Department Authorization Act.

> His amendment requires 'real time' notification to Congress of offsets being considered in connection with an arms sale subject to Congressional approval. This provision will help Members of Congress develop a truer picture of the employment impact of potential arms sales. However, this information will not be available to the public.[30]

The Department of State is thus tasked to report to Congress arms sales that include an offset arrangement. On occasion this does not happen. To strengthen reporting to Congress, Section 114 (Reporting of Offset Agreements) was added to the Security Assistance Act of 1998:

> Offsets, however, can have significant implications for U.S. foreign policy as well as for the domestic economy, making them legitimate factors in Congressional consideration of an arms sale. Therefore, the provision requires future certifications to include a brief description of the offset arrangement, including the dollar amount.[31]

Even though Congress is reluctant to make significant changes to offset policy, one policy it should change is allowing offsets of Foreign Military Financing (FMF) program funds. This practice has been referred to as an invitation for the receiving nation to "double dip." FMF grants are given as military aid to foreign governments for the purchase of defense equipment. The aided country then negotiates with U.S. industry for offsets against the grant purchases, which provides another pay-back and may include the export of jobs and technology. Consider Israel's $2 billion purchase of combat aircraft. Lockheed and McDonnell Douglas competed fiercely for the deal, which included offsets. McDonnell Douglas won, agreeing to offsets equaling 100 percent of the sales price.[32] This policy has been questioned for years and has remained under congressional scrutiny. GAO's published testimony in 1994 specified the need for policy change.[33] A report sent to Congress from the U.S. Commerce Department on 4 December 1998 likewise cites the FMF policy, asserting that "The U.S. program (FMF) is unique in that no other arms supplier provides a combination of grant aid and offsets. The policy should be changed to limit or eliminate offsets as a condition of receiving FMF funding."[34]

Despite such denunciations, the U.S. continues its laissez faire policy, albeit entwined in a confusing tangle of overlapping, contradictory laws and regulations. Many informed observers consider the time long overdue for a comprehensive review of legislation, executive orders, and regulations. But such reform is unlikely without courageous leadership from the President and Congress.

**Department of Defense Policy**

The Department of Defense's standing policy has been one of not encouraging or participating directly in offset arrangements,[35] while remaining "cautious and not (making) any decisions to unilaterally limit offsets."[36] A 1996 GAO report stated that on specific weapon sales, DoD has discussed offsets with several countries on a case-by-case basis, but along with the Departments of State and Commerce, DoD has "not consulted with foreign nations on the adverse effects of offsets" as detailed in the 1990 presidential policy statement or the 1992 law.[37]

One early example that discouraged the Pentagon from active involvement in offsets came with Northrop's 1975 sale of F-5s to Switzerland. In this sale, DoD agreed to be a guarantor of the offset commitments. Then when Northrop experienced difficulty meeting the offset requirement, DoD was obliged to purchase Swiss products. Subsequently, DoD became frustrated through direct encounters with trade restrictions. Finally, DoD found itself in the difficult position of pushing other government agencies to buy Swiss products to meet the offset requirements. The Pentagon quickly and wisely abandoned this guarantor's role with a memorandum signed by Deputy Secretary of Defense, Charles Duncan in May 1978.[38] This memo "effectively placed full responsibility for meeting any further offset commitments on the U.S. firm which had agreed to such conditions, removing the U.S. government from any back-up role."[39] This DoD policy preceded the President's Offset Policy Statement of 1990, which reaffirmed the U.S. Government's hands-off approach to offsets.

The U.S. military is required to conform with "Buy American" laws, which limit foreign defense acquisitions. At the same time, the 1990 presidential policy statement, the 1992 Defense Production Act Amendment, and the 1996 National Export Strategy call for the all agencies, including DoD, to consult with other nations and U.S. arms producers to minimize the adverse effect of offsets. "While the Pentagon has consulted sporadically with other nations in connection with specific weapons sales, defense officials say that U.S. 'Buy American' laws, and U.S. reluctance to change those laws, put them in a weak negotiating position."[40]

The U.S. is no less than hypocritical when, on one hand, it opposes economically inefficient and market-distorting offsets, while on the other hand, it promotes the anti-competitive "Buy

American" laws which grant price preferences to domestic manufacturers and handicap foreign bidders. Sometimes DoD appropriation acts prohibit purchases of specific products from foreign manufactures.[41] "Buy American" provisions, which insist that weapon system sources be American, pose problems much like those posed by foreign government offsets.[42] When the U.S. purchased major weapon systems such as the Harrier aircraft, the Ptarmigan radio system, or Beretta pistol, all purchasing agreements stipulated that final assembly takes place in America.[43]

U.S. arms sales policy explicitly controls the transfer of arms. The sale of biological, chemical, and nuclear weapons is prohibited; however, most conventional weapons can be sold, with the exception of ballistic/cruise missiles, anti-personnel landmines, Stinger missiles, napalm, and depleted uranium anti-tank ammunition. Sales are approved on a case-by-case basis, subject to an interagency review and review of the policy for the country or region under consideration.[44]

**Military Perspective**

To determine from a military perspective whether offsets are strategically beneficial or detrimental, we must consider much larger issues, such as weapon proliferation, technology transfers, inter-operability, military alliances through equipping and training, and the industrial base and economies of scale.

**Proliferation**

Arms proliferation is a global concern, especially for weapons of mass destruction (WMD), mines, small arms, and technically advanced weapons. Offsets can potentially accelerate this proliferation through sales, coproduction, and technology transfer. In the past importers of arms accepted generation–old systems, but today weapon sales have become a buyer's market. Buyers friendly to the U.S. request can request and receive many top-of-the-line systems. Although the U.S. continues to maintain technological superiority in arms, that advantage can vanish through satisfying other countries' offset demands for the most modern systems and technology. Then the cycle continues with a need for U.S. research and development to once again progress to a militarily dominant position. For example, Lockheed lobbyists inform Congress that several countries own the very capable combat F-15 and F-16, thereby justifying the need for the F-22.[45] Should the U.S. more actively and strictly regulate exports and offsets in the name of arms control?

R. James Woolsey, former Director of the Central Intelligence Agency, described the threat of proliferation:

> We also track the proliferation of advanced conventional weapons and technology, a growing military threat as unprecedented numbers of sophisticated weapons systems are offered for sale on the world market. Especially troubling is the proliferation of technologies and expertise in areas such as sensors, materials, and propulsion in supporting the development and modernization of weapons systems. Apart from the capability of some advanced conventional weapons to deliver weapons of mass destruction, such weapons have the potential to significantly alter military balances, and disrupt U.S. military operations and cause significant U.S. casualties.[46]

Because of the technological, economic, and political benefits derived from offsets, arms sales are increasing and proliferation becomes a greater problem. Although U.S. international trade is limited to non-WMD systems, many consider the transfer of arms production capabilities as dangerous and shortsighted. If one accepts the paradigm that, "more weapons can lead to less security,"[47] offsets are detrimental to the U.S. military and national security.

**Technology Transfer**

"Technology transfer is one of the most highly valued offsets."[48] Approximately one-quarter of all defense offset transactions involve the transfer of technology.[49] It is difficult to control and monitor shared technology or to monitor where it eventually goes.

Refusing to transfer technology through an offset can jeopardize defense sales. In December 1998 Lockheed Martin negotiated with the United Arab Emirates (UAE) for a $7 billion sale of F-16s and related equipment. This sale illustrates some of the problems with technology transfer, because it fosters foreign competition by means of licensing and co-production. With the purchase, the UAE insisted on the software codes that could reprogram the system, to include reprogramming to counter U.S. and allied fighter aircraft. Because of U.S refusal to permit this technology transfer, the UAE reopened talks with French producers. Further, a competitor with U.S. based production, TAI, which acquired manufacturing capability through offsets, is actively pursuing the assembly of the F-16s in Turkey or the contract to produce parts.[50]

Technology transfers, largely promoted by offsets, can thus pose a threat to national security and the military. Technical knowledge and advanced or enhanced weapon systems can end up in the hands of an adversary. Likewise, research and development or production knowledge can be used and shared to benefit other nations' acquisition programs. Alarmingly, technology that improved Iraqi Scud missile-targeting capabilities was originally transferred from the U.S. to Brazil through an offset program.[51]

Since the U.S. is primarily an exporter of weapon systems and technology, it does not substantially benefit from offset technology transfers. But the U.S. can be threatened directly and indirectly through these transfers.

**Interoperability**

Since widespread use of the same equipment is the most obvious form of interoperability, offsets can be interpreted to promote equipment and training purchases. On the high technology battlefield where we will fight alongside of multinational forces, there is a greater need for standardization and commonality. Especially critical is interoperability of Command, Control, Communication, Computers, and Intelligence (C4I) technologies. But U.S. allies, such as North Atlantic Treaty Organization (NATO) partners, have often balked at adopting U.S. C4I equipment and standards due to cost, industrial competitiveness, national sovereignty, and jobs.[52] However, offsets may have broken down many of these barriers and improved interoperability.

With interoperability gained through offsets, more countries own, maintain, and fight with American weapon, so the U.S. military can potentially benefit from foreign-owned manufacture and repair facilities. The U.S. military currently uses foreign companies at their foreign locations to rebuild and repair weapon systems. Many of these overseas facilities were established through offset coproduction agreements. The capability of this expanded friendly industrial base will become even more important in times of conflict when requirements will out-pace the domestic industrial base's capability. We can then benefit from the redundancy of strategic locations of critical, interoperable items. For example, the F-16 now can be maintained, repaired, or even manufactured at locations that literally span the globe.

To meet the challenges of interoperability, offsets can be especially useful in partnering and cooperation that begins at system development. Cooperative international programs, supported by offsets, provide seamless interoperability that is essential to strategic success.

**Military Alliances, Training, and Allied Modernization**

Nations tend to align politically, economically, and diplomatically with other nations with whom they trade arms. In a bipolar world this was especially true. But even today the fact remains that a country maintains significant ties to the country that produces their weapon systems. Since the breakup of the Soviet Union and the increasingly competitive arms trade, alliances based on weapons sales can be even more complex.

From a military perspective, weapon systems alignments usually include not only military hardware, but also military training. Training is also an interoperability issue. Operation, manufacture, and maintenance training for U.S. weapon systems is normally provided to the purchasing country directly through contractors or through the U.S. International Military Education and Training (IMET) program. Regardless of the training source, these follow-on activities provide strong ties with the U.S. and its military, especially through training and education programs. Through these ties, relationships develop that strengthen our national security. Foreign militaries become familiar with and learn American values and professionalism. Further, English language training, technical skills, and routine procedures are shared. They become critical to interoperability[53] and effective coalition operations.

Selling companies thus use educational services to meet their offset obligations. Similar to the IMET program, relationships and exposure through educator-student arrangements are an important instrument of influence and national security. The Department of Commerce Database for 1993-1996 lists 24 educational service offset transactions valued at over $229 million.[54]

As our friends and allies build their militaries and upgrade their weapon systems, our combined coalition strength increases. Both South Korea and Taiwan have used offsets to obtain leading-edge weapon systems and technology to counter communist military threats.[55] But such trade involving offsets can also be a destabilizing factor to regional stability. In September 1992, China protested the sale of 150 F-16 jets to Taiwan and withdrew from negotiations limiting arms transfers.[56]

Whereas companies and countries that enter offset agreements generally anticipate a congenial and cooperative arrangement, offsets do not always build goodwill between the offset parties or within an alliance. In October 1998, Kuwait threatened fines and blacklisting companies for failing to meet their offset obligations; further, Kuwait has held up payments to these companies. Kuwait mandates that foreign contractors are required to accept offset investment requirements equal to 30 percent of the contract value. Kuwait is not the only country frustrated with companies' failure to meet offset demands. Saudi Arabia's Prince Fahad Bin Abdullah, chairman of the Saudi offset committee, reported in March 1997 that British firms had fulfilled only eight percent of $2 billion worth of offset obligations. Additionally, French firms fulfilled only six percent of $700 million worth of obligations to Saudi, and U.S. contractors only 16 percent of $1.7 billion of offset obligations.[57]

The U.S. must continue to use offsets to maintain its role as the dominant global exporter of military systems. Although more weapons do not necessarily make the world more secure, cooperative development and acquisition have become important to military alliances and to modernization.

**The U.S. Industrial Base and Economies of Scale**

The industrial base has strategic impacts on the defense, economy and political strength of a nation. This base provides military might, prestige, jobs, and international leverage. The U.S. defense industrial base is unmatched due to its advanced technology, productivity, large DoD budget, and share of the defense market. Size not only provides advantages such as increased funding for research and development, but also through economies of scale, which enable the U.S. to offer advanced weapon systems to potential clients worldwide at lower prices. Without the added volume from its international sales, the U.S. industrial base could struggle making unaffordable systems in the post-Cold War world. The U.S. industrial base's dominance, along with protectionist policies, accounted for $21.9 billion in defense sales to Europe during 1988-92, compared to $1.2 billion in U.S. purchases from European countries.[58] Offsets are important to retaining a competitive edge in trade, in sustaining the economies-of-scale advantage, and in maintaining our domestic defense industrial base.

A global decline in defense spending has significantly increased competition and highlighted the economies of cooperation in defense acquisitions. The National Export Strategy recognizes the impact of offsets on the industrial base: "Offsets can provide benefits from maintenance of defense system production lines and additional sales of U.S. spares and services over the lifetime of the exported hardware."[59] Through a Patriot missile offset agreement with Japan, Raytheon "stands to realize at least $776 million from its coproduction deal, mostly clear profit since the U.S. government funded the development of the missile." In addition to this economy-of-scale profit, Raytheon should benefit from follow-on sales of upgrades and spares well into the future.[60] The U.S. military stands to benefit from these larger production runs for weapon systems and spare parts, along with increased security gained through our allies' Patriot capabilities.

Although smaller nations want to promote self-reliance in their defense industrial base, most countries indigenous development and production is excessively costly and risky. On their own, they can usually produce only uneconomical small quantity defense items.

However, building the industrial base can have adverse effects. Firms that rely on offsets in the long run can become dependent on them and eventually become non-profitable.[61] Some production facilities lack orders after the programmed cycle of production is completed, such as the M-1 tank plant in Egypt. They then become unproductive and inefficient. Often, they then try to commercialize, or without assistance they fold. Additionally, building an industrial base and seeking offsets discourages off-the-shelf purchases, which are usually significantly more economical.

Even coproduction can have significant costs to the foreign government. In Japan the coproduction of 130 F-2 (FSX) fighters (a hybrid of the F-16 Falcon) cost the Japanese about $100 million per plane, but it would have cost only about $20 million per plane to directly purchase the fighter.[62] Offsets do permit a nation's industrial base to participate in the U.S. arms business and establish some of the military, economic, and political advantages of holding a portion of the defense industrial base. But they do not guarantee a competitive or cost-efficient product.

The U.S. military greatly benefits from the economies of scale of increased production. Offsets can both negatively and positively affect a domestic industrial base. In view of the problem of arms proliferation, it is problematic for DoD to advocate offsets in the interest of national security, because offsets inevitably expand global arms production capabilities.

## CONCLUSION AND RECOMMENDATIONS

Offsets have become a well-established part of international arms trade. They will remain so well into the future. At the conclusion of a 1996 workshop on offsets, the organizers acknowledged "that there is a widespread feeling that the issues surrounding offsets may be too complex to resolve through government intervention without causing unintended harm to trade."[63] Although challenging, from an economic and political perspective there needs to be more pressure to achieve international cooperation to negotiate a formula for reducing offsets. *Defense News* (1 February 1999) reported that the Department of Commerce "aims to establish a U.S.-European Union working group in the coming months to review how to limit offsets where possible." However, in the same article an industry representative stated, "I'm dubious. It's going to be a lot harder to establish some kind of international protocol on offsets than it is to forge international arms control agreements because there's so many ways to cheat."[64] From a non-military perspective, efforts to change the offset policy will remain difficult.

The Presidential 1990 offset policy limited agency involvement in offset arrangements, which limits DoD's ability to substantially impact offset policy. Nonetheless, the complex issues surrounding offsets certainly concern DoD. From a military perspective, not all offsets are bad. Properly controlled, they can promote national security. Offsets positively impact interoperability, alliances, training, and modernization; they have a substantial positive impact on the industrial base and economies of scale. Notwithstanding, offsets promote proliferation of weapon systems that may negatively or positively influence national security. Finally, the impact of technology transfer is generally negative.

Even though foreign competition often receives offset assistance from their governments, DoD should continue its policy not to recognize or accept responsibility to implement offsets. However, DoD should resist the tendency to focus internally and remain open to international development and cooperative acquisitions. Failure to work with industry and other countries in an environment that is increasingly global could threaten advancements in interoperability, preservation and expansion of the industrial base, and strength of alliances.

From a military perspective, offsets are no less challenging and perplexing than they are politically and economically. The complexities of offsets along with the mix of advantages and disadvantages they offer, do not yield clear-cut findings that warrant significant DoD policy changes. To influence the negative factors of proliferation and technology transfers, DoD should pay closer attention to the licensing and disclosure processes required to export military systems and technology. However, DoD efforts to dominate offset policy will be doomed to failure.

**ENDNOTES**

[1] Gordon F. MacDonald, “The Economics of Offsets: Defence Procurement and Countertrade” (book review), *RUSI Journal*, February 1998, 71.

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**About the Author**

Lieutenant Colonel Frank S. Petty reported to the Defense Supply Center Columbus (DSCC) in July 1999 to serve as the Director, Land Based Weapon Systems Group.

LTC Petty attended the Transportation Officer Basic, Rotary Wing Flight, Aviation Maintenance, and Test Pilot Courses. His initial assignment was with the 9th Aviation Battalion, 9th Infantry Division, at Fort Lewis, Washington, where he served as an Aircraft Maintenance Platoon Leader, Maintenance Test Pilot, Company Executive Officer, and Company Commander. He then attended the Transportation Officer Advanced Course and was assigned to Germany. In Germany, he served as the Maintenance Officer/Test Pilot for the 205th Aviation Company (CH-47) in Mainz; Staff Aviation Officer at 4th Transportation Command in Oberursel; and 70th Transportation Battalion (AVIM) S-3 (plans and operations) in Mannheim.

LTC Petty entered the Acquisition career field in 1988 through the Training with Industry Program at Bell Helicopter, Fort Worth, Texas. His first contract assignment was at Defense Contract Management Area Operations San Antonio. He was deployed in support of Operation Desert Storm as a Warranted Contracting Officer (PCO) and Purchasing Division Chief. Upon his return to San Antonio he continued as an ACO and as Acting Commander of the newly activated Defense Plant Representative Office, Stewart and Stevenson.

Joining Defense Contract Management Command-International (DCMCI) in June of 1993, he served as the Deputy Director of Quality Assurance, Deputy Director, Middle East Team. He commanded DCMC Boeing-Philadelphia with contract oversight over CH-47 Chinook, V-22 Osprey, RAH-66 Commanche, and CH-46 Sea Knight contracts.

LTC Petty is a graduate of the Army Command and General Staff College, the Advanced Program Management Course at the Defense Systems Management College, U.S. Army War College.

He entered the Army in 1978 through the Reserve Officers Training Corps (ROTC) program at Brigham Young University, earning a Bachelor of Arts degree in Economics. LTC Petty also holds a Masters of Business Administration from the University of Puget Sound, Tacoma, Washington.